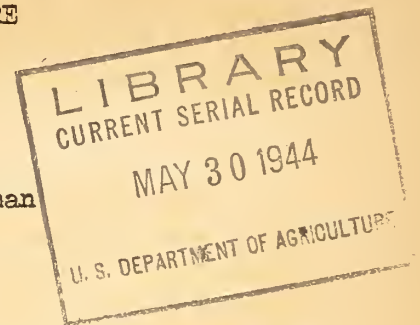


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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Animal Industry

FEEDING GARBAGE TO HOGS

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Garbage is fed to hogs in a great many localities with varying degrees of success. The success of the enterprise is influenced by the composition of garbage and the many complicating factors involved in its feeding to hogs. To answer inquiries on the feeding of garbage to hogs, the following information, based largely upon the experiences of operators of garbage-feeding plants, is presented. The commercial character of the subject is such that very little experimental work has been done on it by this Department or the various agricultural experiment stations, in recent years.

Garbage ordinarily consists of all refuse accumulations of animal or vegetable matter discarded from the human food supply. It is generally composed of scraps, peelings, fruit remnants, and stale or spoiled food, and is variable in composition.

The composition of garbage depends largely on its origin and the season of the year. Garbage from Army Camps, hospitals and institutions is usually of excellent quality. Hotel and restaurant garbage, on the average, is next in food value, while ordinary municipal garbage is generally lower in feeding value.

Value of Garbage for Hog Feed

A Person considering the feeding of garbage to hogs must be prepared to take certain risks. There is considerable overhead expense involved in the cost of equipment, transportation expenses, and loss of hogs during the feeding period. The net cash returns, therefore, from a ton of garbage will depend on keeping expenses to a minimum, at the same time meeting all sanitary regulations.

It is generally agreed among feeders that garbage has deteriorated in feeding value in the last 10 years. This fact is attributed to increased economy on the part of the housewife, due to the war effect and to the marked increase in the use of electric and other automatic refrigerators, which make possible the utilization of food previously thrown away. Formerly, it was estimated that a ton of ordinary municipal garbage would produce, in hogs, approximately 50 pounds of marketable live weight, while under present conditions the average marketable live weight from a ton of such garbage is more likely to be from 30 to 40 pounds. No reliable figures are available on the money return to be expected from a ton of garbage under such varying conditions as exist in different localities.

However, it is estimated that, on the average, a ton of garbage will furnish a day's feed for 70 to 75 pigs weighing from 50 to 100 pounds each; for 50 to 60 hogs weighing 100 to 150 pounds each; and for 40 to 50 hogs weighing more than 150 pounds.

Care and Collection of Garbage

The wholesomeness of garbage depends greatly on the care it receives while being accumulated. The garbage should be kept in a water-tight receptacle, well covered, and inaccessible to dogs or cats. Foreign material, such as glass, broken crockery, lye, and other materials that are deleterious to the health of animals should be kept out of garbage. The frequency of garbage collection is important from the standpoint of its feeding value. The greater feeding value of fresh garbage is the chief reason for frequent collections. To insure more regularity in collections, it is generally advisable for the municipality to collect the garbage and deliver it to a central station where it can be obtained by garbage feeders. This method of collection usually insures better service to the householder and is better able to meet changing conditions and overcome collection difficulties.

In making contracts for obtaining garbage for feeding, a long-term contract is advisable. The contractor must consider the cost of his equipment, and if the contract is to run for a long period he could consider a better grade of equipment than if the contract were for a shorter period. With the assurance of a long-term contract the feeder could put up a more sanitary feeding unit.

Some feeders have their own collection routes, especially those using hotel, restaurant, and sandwich-shop garbage. In such cases the collector should be familiar with local sanitary regulations regarding the type of equipment specified for both hauling and feeding so as to comply with the requirements.

Conditions vary greatly in different parts of the country and the methods practiced are so different that it is impossible to recommend any definite plan or procedure applicable to all sections.

Location of Hog Farm

When considering the location of a hog farm for the feeding of garbage one should first learn if there are any county, township or municipal regulations that govern such establishments. The close proximity to densely populated sections must also be considered as regulations may be passed later that would necessitate removal at considerable expense to a more distant location.

A hog farm should be located on soil that drains readily, preferably sand or gravel. It is also an advantage that the land be rolling. Quarters for the hogs should be located for warmth in winter and coolness in summer.

Garbage fed hogs require abundant drinking water. If any streams or brooks are included in the property they should be carefully traced and

their purity established or else fenced off so that the animals will drink pure water otherwise supplied. Although any practical method of watering may be used, automatic drinking fountains have several advantages, among them the ability to keep the water from freezing in winter.

The size of the farm necessarily varies with the system of handling. With feeding outdoors in all but extreme weather, about 50 pigs per acre is a good working average. Under cover the number can be increased to from 400 to 600 an acre.

Buying Compared with Raising Feeder Pigs

There is a difference of opinion among garbage feeders as to the relative merits of hogs raised on garbage from the time of weaning and those purchased on the market at about 100 pounds in weight. Some assert that the garbage-fed pig has not the strength of the pigs raised on grain; other person will use feeder pigs only when their regular stock is unable to consume the amount of garbage available.

A hog accustomed to garbage early in his life should be the more successful as a rule. This feed is more bulky than grain and requires a greater stomach capacity for the same amount of nourishment to be assimilated.

Feeders who purchase the greater part of their stock generally get hogs when they are at an age and weight at which they can make the largest and most profitable gain. There is, however, a possibility that feeders will have considerable difficulty in purchasing the kind of animals they desire for feeding. In buying pigs, the buyer near the point where a considerable number of hogs are placed on the market has a distinct advantage. Local conditions will undoubtedly be an important factor in deciding this question.

Breeds to be Used

Practically every breed of hog is fed successfully on garbage. To feeders breeding their own animals, the importance of using good purebred boars should not be overlooked. Even though the sows may not be purebred, the extra money put into a good purebred boar of desirable type and from strains of breeding with a known background for good feeding qualities will usually yield good returns on the investment.

Caution should be exercised as to the age at which gilts are first bred. They should be bred to farrow their first litters when approximately one year old. At this age the gilt has had a better chance for growth and development and is in better physical condition to farrow strong, vigorous pigs.

Cook Meat Scraps and Bones in Garbage Before Feeding

There has been considerable discussion on the desirability of cooking garbage before feeding but it is generally conceded by garbage feeders in this country that raw garbage is superior in feeding value to

that which is cooked. Cooking causes injurious acids, alkalies, or other substances harmful to hogs, such as coffee grounds, and acids from citrus fruit rinds, to spread throughout the garbage. Raw garbage, on the other hand, better enables the hog to use its powers of feed selection and to refuse those feeds that are unappetizing or harmful.

Although hogs relish raw garbage more than cooked garbage, recent investigations conducted by the Zoological Division of the Bureau of Animal Industry, show that the incidence of trichinae in hogs fed raw garbage is approximately five times as great as that in grain-fed hogs. Trichinae are parasitic worms that may cause the painful and sometimes fatal disease, trichinosis, in persons who eat raw or imperfectly cooked pork. Furthermore, the incidence of trichinae found in hogs fed raw garbage is approximately eight times as great as that found in hogs fed cooked garbage. It is, therefore, recommended that since trichinae occur in uncooked particles of meat and bone, those particles be separated from the regular garbage and thoroughly cooked so as to kill such organisms.

The danger from trichinosis in garbage-fed hogs could be eliminated by keeping garbage containing bones and meat scraps separate from other garbage. The bones and meat must be thoroughly cooked before adding them to the other garbage. By that plan the garbage feeder would save the expense of cooking all the garbage and the hog would have a chance to select the raw fruit and vegetable matter and still have a reasonably desirable feed.

If it is not practicable to separate the bones and meat scraps from the garbage in the above plan, then the practice of cooking the entire lot of garbage would be a solution to the problem. Canada requires the cooking of all garbage not produced on the premises where it is fed. The Canadians consider that cooked garbage produces good gains in hogs.

Other sources of trichinosis in swine are the feeding of slaughterhouse offal; the feeding of uncooked contents of scrap barrels; and the failure to bury, burn, or otherwise dispose of hogs, rats, and other trichinae-infested animals which die on hog lots and pastures and which may be eaten by hogs.

Municipal governments could help solve much of the trichinosis problem by exercising proper control over the handling and feeding of the city garbage. Regulations requiring bones and meat scraps to be kept separate from other garbage, and thoroughly cooked before feeding or by requiring cooking or processing of garbage will help eliminate the danger.

Though the incidence of trichinae is higher in garbage-fed hogs than in grain-fed hogs, there is no danger whatever when pork from either class is thoroughly cooked before being eaten. It should be remembered that large pieces of pork require more cooking than small ones, because heat penetrates slowly in the cooking process. The practical precaution to be observed by the consumer in the use of pork, which is one of the most appetizing and nourishing foods in the human diet, is to cook pork thoroughly. Further information concerning trichinosis may be obtained on application to the Zoological Division, Bureau of Animal Industry.

Methods of Feeding

When garbage deliveries are made by truck it is usually advantageous to have what are known as feeding lots. These lots should be about an acre in size and contain one or more feeding platforms. The platforms when made of lumber should be on skids and have a low rail, a 2 by 4 nailed on edge, to prevent the garbage from being shoved off the platform. Concrete platforms should have a minimum width of 8 feet. The platform should have a concrete base 3 1/2 inches thick, with a half-inch surface coat. In cold climates, there should be a gravel or cinder sub-base combined with good drainage to prevent damage from freezing. Concrete floors should be provided with curbs 6 to 8 inches high, with base set 18 inches in the ground to prevent rats from burrowing underneath. The floor should slope toward one end to a gutter for drainage purposes.

The pigs should be permitted to enter the feeding lot only after the garbage has been dumped and the vehicle has left the lot. This prevents injury from the vehicle and keeps garbage from being thrown on the pigs.

Before the next feeding time the hogs should be driven out of the lot, the refuse left from the garbage gathered, and the platform cleaned. Wooden platforms should be moved from time to time to different locations within the lot and to different lots. The lots vacated should be plowed before being used again, to eliminate the odors from spilled garbage, retain the fertilizer value of the garbage and manure, and improve sanitation. The lots plowed should be sown to some forage crop to be pastured off by the hogs.

Platforms that are not to be moved should preferably be of concrete. They should be ample in size so that the material can be spread out on a flat surface where the hog will have an opportunity to select his feed. If concrete platforms or troughs become so corroded or pitted by the garbage juices that they are hard to clean, they should be resurfaced.

When garbage can be graded the best of it should be fed to fattening stock or to sows with young pigs. When open-lot feeding is practiced this is a simple procedure, since the material collected in the better sections of the city can be reserved for these particular purposes. When a large quantity of garbage is dumped in one lot the same effect can be secured by first admitting only the fattening stock to the platforms. After these animals have finished eating, a second group, such as young shoats can be let in, followed if desired by still other groups. By this procedure not only is the better garbage eaten by the stock that needs it most, but the garbage is eaten more completely. The last group, generally brood sows, is kept more hungry and can be relied upon to clean up all edible material remaining.

The feeding of frozen garbage during the winter months is not advisable. Before this feed can be digested its temperature must be raised to that of the stomach. This requires energy that can be supplied more cheaply by artificial means than by the body heat of the animal. Much frozen garbage is fed, but less gain in weight is obtained. If the material is thawed before feeding, the gains are believed to equal those of other seasons of the year.

Use of Supplementary Feeds

A good grade of garbage is more or less a balanced ration and no supplementary feeds, other than minerals, are required. The composition of most garbage, however, is variable and depends largely on its origin and the season of the year.

A good mineral mixture should be made available at all times, in boxes or self-feeders where it will be dry. A mixture of equal parts of steamed bonemeal, ground limestone, and common salt is palatable and contains the ordinary mineral elements for supplementing the ration.

When the supply of garbage is limited for the number of hogs on feed, supplementary feeds such as corn, barley, wheat middlings, or similar feeds may be fed. Many feeders are using distillery slop in addition to garbage and report satisfactory gains. When grain is reasonably low in price, good results may be obtained by feeding garbage alone during the summer months, when there is ordinarily a large supply of garbage, and then finish the hogs on a grain ration. Greater gains per day can be made with grain supplements, but at a greater cost than on garbage alone.

A certain amount of roughage may be desired, especially when institution or hotel garbage is being fed. Access to good-quality alfalfa hay or soybean hay, fed in racks, during the winter months will supply the hogs with a good source of vitamins, which may be lacking in garbage at this season of the year.

City garbage is sometimes processed and dried with the recovery of some fat for industrial purposes. The processed garbage is in meal form and is usually fed as a protein supplement to a grain ration. The dried processed garbage differs in composition and feeding value from digester tankage and usually contains 15 to 20 percent crude protein. For fattening hogs on pasture best results are usually obtained when the processed garbage is fed as a supplemental mixture with other protein supplements instead of being used as the sole supplement to the corn ration. The gains of the hogs are more satisfactory and the processed garbage has a higher feeding value.

Number of Animals Per Pen

The losses due to "Piling up" in many garbage feeding plants are frequently so heavy that most hog raisers have very positive ideas as to the number of animals that can safely be carried per pen. It is estimated that a minimum of 5 square feet of floor space for shelter is necessary for pigs weighing approximately 100 pounds; 8 square feet for hogs of 200 pounds weight and 11 square feet for hogs of 300 pounds weight. Some feeders provide a space of approximately 16 square feet per 200-pound hog, while some say that not more than 10 hogs is the number that should be allowed in a shelter 10 by 20 feet, floor dimensions.

Individual pens should be provided for each brood sow at farrowing time. The minimum size of the farrowing pen should be 6 by 6 feet for gilts, and 7 by 7 for large sows. The farrowing pen should be provided

with guard rails extending along the sides and end of pen to prevent the sows from rolling on the pigs. The guard rails should be 8 to 10 inches from the floor level and at least 6 inches from the wall.

Upon being weaned the young pigs may be kept 10 to 30 to a pen, until about 3 months old. Efforts should be made to keep in each pen pigs of approximately the same size. When between 60 and 75 pounds in weight they can be turned into comparatively large lots, one-half acre or more in size.

Quality of Pork Produced

The quality of meat produced by garbage-fed hogs is believed to vary considerably, being influenced by variations in conditions under which it is fed and the quality of garbage itself. So far as this Bureau has been able to ascertain, there is no experimental evidence showing that the meat of hogs raised to a satisfactory finish on a good quality of garbage is inferior to that of hogs that have received other feed. Some buyers, however, pay a lower price for garbage-fed hogs than for grain-fed hogs on the grounds that the former have a larger percentage of shrink.

To offset the market discount, feeders may find it profitable, when the price of grain is reasonable, to supplement the garbage diet with a grain ration for 6 to 8 weeks before marketing. This gives hogs thus fed the market status of grain-fed hogs, and they should bring approximately the same price. At times it may be profitable, following an all-garbage diet, to give the hogs a four-weeks finish on a standard grain ration, properly supplemented. The method of finishing the hogs prior to market will depend on local market conditions for both feed and hogs, and would have to be determined by the feeder himself.

Sanitary Conditions Essential

In garbage, which spoils easily, sanitary measures are relatively more important than with a practically sterile grain feed. Uneaten garbage and manure should be cleaned up every day and either composted with dry earth or spread on the ground and plowed as soon as conditions permit. The ground beneath wooden platforms should be kept free from spoiled garbage and other refuse.

In garbage-feeding establishments the value of thorough sanitary measures cannot be overestimated. Efforts should be made to keep rats, crows, and buzzards under control. The use of fly traps and a good fly spray will tend to keep fly infestation at a minimum. Clean, neat, well-ventilated buildings, the elimination of mud holes and general sanitary practices aid in the production of healthy, high-quality hogs.

Diseases and Parasites

When buying feeder pigs the possibility of introducing diseases into the herd must not be overlooked. The addition of any pigs infected with or harboring disease may cause serious infection of the entire herd and result in heavy losses.

Hog cholera is one of the most serious diseases to which hogs are susceptible and although simultaneous inoculations will protect a herd from the disease, the precaution will not prevent all losses. Experiments have shown that permanent immunity can be imparted by the simultaneous treatment of pigs during the suckling period, at a minimum cost for labor and materials.

Tuberculosis is contracted by hogs principally from association with tuberculous fowls and feeding on diseased carcasses. Allowing hogs to eat viscera of tuberculous poultry is a dangerous practice. In areas in which bovine tuberculosis has not yet been eradicated there is danger of infection in hogs that are allowed to follow untested cattle or that receive raw skim milk from such herds.

To prevent pneumonia in hogs, the main precaution, as with grain-fed hogs, is to keep the animals from becoming over heated and then cooling off too rapidly. Practical preventive measures are good ventilation, dry sleeping quarters, sanitation, and ample space so that overcrowding does not occur. As well as being undesirable for nutritive reasons, the feeding of frozen garbage should be avoided since this has a tendency to lower the vitality of the animals and make them more susceptible to this disease.

As previously stated, garbage-fed hogs are more likely to be affected by trichinae, than are hogs raised on other feeds and under more sanitary surroundings.

Other diseases can be expected to appear among garbage-fed hogs in about the same degree as among grain-fed stock. The treatments are identical and the same care is required.

When disease appears in the herd it is recommended that a veterinarian be called immediately to diagnose the trouble and prescribe treatment. There is generally a better chance of combating an outbreak when signs of disease first appear rather than after the infection may have spread to the entire herd, with the possibility of heavy death losses and retarded growth of the surviving animals.

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